

**AMENDMENT TO THE CLAIMS:**

Please reconsider the claims as follows:

1. (Previously Presented) A network element management system (NEMS) including processing equipment adapted to perform a method of analyzing a plurality of network elements configured to support at least one established communication path in a network, the method comprising:

(a) receiving from one of a plurality of network elements included within an established communication path, a notification signal indicative of the existence of the established communication path;

(b) requesting local network information from a network element included within the established communication path;

(c) receiving from the network element the requested local network information, the local network information comprising one or more of topology information, connection information and performance information;

(d) analyzing the received local network information to map an associated portion of the established communication path;

(e) responsive to the received local network information and the corresponding mapped portion of the established communication path, selecting a next network element of the established communication path; and

repeating steps (b)-(e) for the next selected network element.

2. (Canceled).

3. (Previously Presented) The NEMS as defined in claim 1, wherein the method further comprises: determining network capacity using communication path data from the analyzing step.

4. (Previously Presented) The NEMS as defined in claim 1, wherein the method further comprises: determining network performance using communication path data from-the analyzing step.

5. (Previously Presented) The NEMS as defined in claim 1, wherein the method further comprises: detecting network faults using communication path data from the analyzing step.

6. (Previously Presented) The NEMS as defined in claim 1, wherein the topology information includes a routing table and wherein the connection information includes a connection table.

7-12. (Canceled).

13. (Previously Presented) A network element management system (NEMS) including processing equipment adapted to perform a method for analyzing a plurality of network elements configured to support at least one established communication path of a network, the method comprising:

- receiving a notification signal from a network element, said notification signal indicative of a new established communication path in the network, said notification signal including circuit identifier information;

- querying the network element in the network for connection information;

- receiving the connection information from the network element in response to querying;

- comparing the connection information with the circuit identifier information to determine a match condition; and

- if the match condition occurs in the comparing step:

- querying the network element for routing information;

- receiving the routing information from the network element;

- analyzing the routing information received to map the new established communication path in the network;

- selecting a next network element to query along the new established communication path; and

- if the next network element has been selected, fetching from the received

circuit identifier information, circuit identifier information associated with the next network element and iterating the method from the step of querying for the connection information for the next network element.

14. (Canceled) ~~The NEMS as defined in claim 13, wherein the method further comprises:~~

~~storing communication path data of the established communication path in the network.~~

15. (Canceled).

16. (Previously Presented) The NEMS as defined in claim 13, wherein the method further comprises:

storing communication path data of the established communication path in the network.

17. (Currently Amended) Apparatus for analyzing a plurality of network elements interconnected to form a communication network and configured to support at least one established communication path in the communication network, the apparatus comprising:

a network analysis engine module adapted to perform,

[[means,]] responsive to receiving from one of a plurality of network elements included within an established communication path, a notification signal[[,]] for querying a network element in the communication network for local network information, the local network information comprising one or more items selected from the group including topology information, connection information, and performance information, wherein the notification signal is indicative of the existence of the established communication path;

[[means,]] responsive to receipt of the local network information, [[for analyzing]] an analysis of the local network information received to map an associated portion of the established communication path; and

[[means,]] responsive to the local network information received and the

corresponding mapped portion of the established communication path, [[for selecting]] a selection of a next network element of the established communication path;

wherein the [[means for]] querying function is further responsive to a notification that the next network element has been selected.

18. (Currently Amended) The apparatus as defined in claim 17, wherein the querying [[means]] function further comprises:

[[means for]] receiving the notification signal from one or more network elements, the notification signal indicative of a network event.

19. (Currently Amended) The apparatus as defined in claim 17, further comprising:

[[means for]] determining network capacity using communication path data of the established communication path from the analyzing analysis [[means]] function.

20. (Currently Amended) The apparatus as defined in claim 17, further comprising:

[[means for]] determining network performance using communication path data of the established communication path from the analyzing analysis [[means]] function.

21. (Currently Amended) The apparatus as defined in claim 17, further comprising:

[[means for]] detecting network faults using communication path data of the established communication path from the analyzing analysis [[means]] function.

22. (Previously Presented) The apparatus as defined in claim 17, wherein the topology information includes a routing table and wherein the connection information includes a connection table.

23. (Currently Amended) The apparatus as defined in claim 17, further comprising:

[[means for]] storing communication path data of the established communication path in the network.

24. (Previously Presented) The NEMS as defined in claim 13, wherein the method

further comprises:

determining network performance using communication path data about the established communication path mapped in the analyzing step.

25. (Currently Amended) A non-transitory computer readable storage medium storing instructions, wherein the instructions, when executed by a processor, cause the processor to perform a method for analyzing a plurality of network elements configured to support at least one established communication path in a network, the method comprising:

(a) receiving from one of [[a]] the plurality of network elements included within an established communication path, a notification signal indicative of the existence of the established communication path;

(b) requesting local network information from a network element included within the established communication path;

(c) receiving from the network element the requested local network information, the local network information comprising one or more of topology information, connection information and performance information;

(d) analyzing the received local network information to map an associated portion of the established communication path;

(e) responsive to the received local network information and the corresponding mapped portion of the established communication path, selecting a next network element of the established communication; and

repeating steps (b)-(e) for the next selected network element.

26. (Currently Amended) The non-transitory computer readable storage medium as defined in claim 25, wherein the method further comprises: determining network capacity using communication path data from the analyzing step.

27. (Currently Amended) The non-transitory computer readable storage medium as defined in claim 25, wherein the method further comprises: determining network performance using communication path data from the analyzing step.

28. (Currently Amended) The non-transitory computer readable storage medium as defined in claim 25, wherein the method further comprises: detecting network faults using communication path data from the analyzing step.

29. (Previously Presented) The NEMS as defined in claim 1, wherein the next selected network element comprises a neighboring network element.

30. (Previously Presented) The NEMS as defined in claim 13, wherein the next selected network element comprises a neighboring network element.

31. (Previously Presented) The apparatus as defined in claim 17, wherein the next selected network element comprises a neighboring network element.

32. (Currently Amended) The non-transitory computer readable storage medium as defined in claim 25, wherein the next selected network element comprises a neighboring network element.